WikiChurches
A Fine-Grained Dataset of Architectural Styles with Real-World Challenges

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WikiChurches

- 9,346 church buildings
- 9,485 images
- 117 architectural styles
- 631 annotated distinctive visual features
CHALLENGES

Fine-Grained

Important Details

Small Sample Size

Class Imbalance

Class Hierarchy
CHALLENGES

Fine-Grained

Important Details

Small Sample Size

Class Imbalance

Class Hierarchy

GOTHIC

ROMANESQUE
CHALLENGES

- Fine-Grained
- Important Details
- Small Sample Size
- Class Imbalance
- Class Hierarchy
CHALLENGES

Fine-Grained

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Class Hierarchy

RENAISSANCE

BAROQUE
CHALLENGES

Fine-Grained

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Class Imbalance

Class Hierarchy

Pinnacle

Quatrefoil

Trefoil Arch

Fleuron
CHALLENGES

Fine-Grained

Important Details

Small Sample Size

Class Imbalance

Class Hierarchy

- 9,485 images
- 64 first-level styles
- 55 styles with < 50 images
### Challenges

- **Fine-Grained**
- **Important Details**
- **Small Sample Size**
- **Class Imbalance**
- **Class Hierarchy**

#### Class Occurrence

<table>
<thead>
<tr>
<th>Class</th>
<th>Count</th>
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<tbody>
<tr>
<td>Gothic</td>
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<td>Pre-Romanesque Art</td>
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<td>Eclectic Architecture</td>
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<td>Art Deco</td>
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<td>Amsterdam School</td>
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<td>Constructivism</td>
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84% of the dataset is represented by the top 10 classes.
CHALLENGES

Fine-Grained

Important Details

Small Sample Size

Class Imbalance

Class Hierarchy

- **Czech Baroque**
  - 7 images
  - 45 images

- **Italian Baroque**
  - 45 images

- **Baroque**
  - 1608 images
  - 16 images
  - 31 images
  - 11 images
  - 11 images
  - 11 images

- **Romanesque**
  - 2422 images
  - 10 images

- **Baroque Revival Architecture**
  - 16 images

- **English Baroque**
  - 31 images

- **Gothic**
  - 3856 images
  - 8 images
  - 110 images
  - 1581 images
  - 6 images
  - 6 images

- **Gothic Revival Architecture**
  - 1581 images

- **Hollandse Gotiek**
  - 6 images

- **Belarusian Gothic**
  - 6 images

- **Brick Gothic**
  - 274 images

- **English Gothic**
  - 110 images

- **Flamboyant**
  - 16 images

- **Italian Gothic**
  - 8 images
  - 8 images

- **Meridional Gothic**
  - 6 images

- **Meridional Gothic**
  - 6 images

- **Norman Architecture**
  - 115 images

- **Renaissance**
  - 263 images
  - 7 images

- **Renaissance Revival Architecture**
  - 21 images

- **Romanesque Architecture of Provence**
  - 11 images

- **Rococo**
  - 6 images

- **Romanesque Revival Architecture**
  - 477 images

- **Romanesque**
  - 111 images

- **Renaissance Revival Architecture**
  - 16 images

- **Renaissance Revival Architecture**
  - 21 images

- **Renaissance Revival Architecture**
  - 21 images

- **Renaissance Revival Architecture**
  - 21 images
Bounding Box Annotations

Baroque

Romanesque

Gothic

- Broken Pediment
- Volute
- Cranked Cornice
- Lombard Band
- Coupled Twin Window with Discharging Arch
- Round Arch Window
- Rhenish Helm
- Gallery of Kings
- Quatrefoil
- Trefoil Arch
- Gothic Window
- Ornate Portal
- Tracery
- Rose Window
- Pinnacle
- Pointed Arch Window
- Barz & Denzler – WikiChurches – NeurIPS 2021
Hierarchy of Architectural Features

- Coupled Twin Window
- Discharging Arch
- Arch
- Twin Window
- Coupled Window
- Window